DATABASE MANAGEMENT SYSTEMS

Question Bank

[1] MODULE - 1

1] Characteristics of Database Approach.
2] Advantages of DBMS approach.
3] Architecture of a typical DBMS / 3-Schema architecture. ↳ DDL, Language.
4] Types of interfaces.
5] Briefly explain:
   (i) Database
   (ii) DBMS
   (iii) Database schema
   (iv) Weak entity type
   (v) Participation constraint
   (vi) Cardinality ratio
   (vii) Recursive relationship
   (viii) specialization
6] Main phases of Database design. Pg - 23 Dec 2018/Jan 20
7] Component modules of a DBMS and their interactions.
8] DBA and Database designers.
9] Types of attributes in ER Model.
10] ER diagrams
   → Bank
   → Airline reservation
   → Movie
   → University → Company.

[2] # MODULE - 2

1] Define the following terms -
(i) Key (ii) super key (iii) candidate key (iv) Primary key (v) Foreign key

2] Relational algebra queries for databases (company, etc)

3] steps involved in converting ER constructs to corresponding relational tables

4] Basic constraints

5] SQL syntax for (i) SELECT (ii) ALTER (iii) UPDATE

6] SQL queries for databases

7] Characteristics of relations with eg

8] Basic operations and how they deal with constraint violations

9] Data types available for attribute specification in SQL.

10] Violations in entity integrity constraint, key and referential integrity constraints, with eg.

11] Mapping of generalization or specialization into relation schemas

12] set theory operations

[2] MODULE - 3

1]- Explain the constructs used in SQL with example:
(i) Nested queries (ii) Aggregate functions iii) Triggers
(iv) views and their updatability v) schema change statements. vi) Group by and Having clause vii) Activation

2]- Dynamic SQL and how it is different from embedded SQL

3]- Advanced SQL queries

4]- SQLJ and how it is different from JDBC.

5]- 3-tier architecture and it's advantages.

6]- Note on:- a) Html forms b) Java Script c) CGI
d) Application servers e) Servlets

7]- Stored procedures in creating & calling of stored procedures.

8]- Single tier and client - server architecture.

9]- Discuss shared variables and communication variables

10]- Explain Drop, delete, update with eg.

11]- Retrieving of tuple with embedded SQL in C.

[3] MODULE - 4

1]- Informal design guidelines used as measures to determine the quality of relation schema design.

2]- Normal forms 1NF, 2NF & 3NF.

3]- Algorithm for testing non-additive join property.

4]- Problems on loses of join property, key of R, decomposition
5]- Insertion, deletion & modification anomalies.
6]- Multivated dependency. Fourth normal form.
7]- Closure of attribute and its example.
8]- Techniques to achieve INF.
9]- Transitive dependencies.
10]- Functional dependencies.
11]- Properties of Relational Decompositions.
12]- Algorithm to find minimal cover for set of FD's. and its problems.

[5] MODULE-5

1]- Two-phase locking protocol in concurrency control.
2]- Basic time stamping algorithm.
3]- Checking serializability with algorithm problems.
4]- Multi-version concurrency control protocols.
5]- Short notes on:- (i) Transaction rollback & cascading rollback (ii) transaction support in SQL (iii) Shadow paging (iv) No undo/redo recovery based on deffered update (v) Recovery techniques based on immediate update.
6]- Properties of transactions (ACID).
7]- Deadlock & starvation problems with solution.
8]- ~~ACID~~ Anomalies that occur due to interleave execution.
9]- Database inconsistency problems.
10]- Database recovery techniques.